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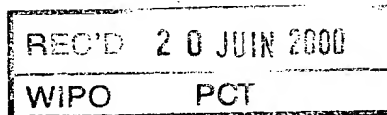


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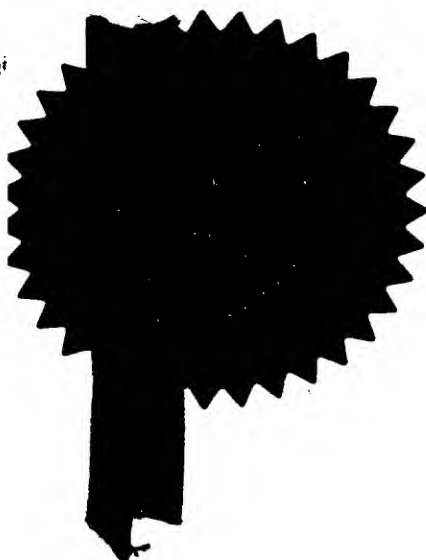
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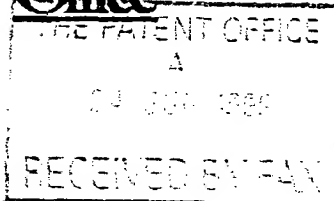


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Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

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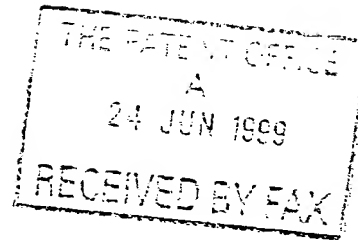
1.	Your reference	P1952-GB		
2.	Patent application number (The Patent Office will fill in this part)	9914752.2		
3.	Full name, address and postcode of the or of each applicant (underline all surnames)	NV Raychem SA Diestsesteenweg 692 B-3010 Kessel-Lo Belgium Patents ADP number (if you know it) 04155032002 If the applicant is a corporate body, give the country/state of its incorporation BELGIUM		
4.	Title of the invention	A CLOSURE CASING		
5.	Name of your agent (if you have one)	K R Bryer & Co		
	"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)	7 Gay Street Bath BA1 2PH Patents ADP number (if you know it) 07288483001		
6.	If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)
7.	If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application		Date of filing (day / month / year)
8.	Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if: a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body. See note (d))	Yes		

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Continuation sheets of this form: NIL
Description 6 + 6 ✓
Claim(s) 3 + 3 ✓
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10. If you are also filing any of the following, state how many against each item.

Priority documents NIL
Translation of priority documents NIL
Statement of inventorship and right to grant of a patent (*Patents Form 7/77*) NIL
Request for preliminary examination and search (*Patents Form 9/77*) NIL
Request for substantive examination (*Patents Form 10/77*) NIL
Any other documents (please specify) NIL

11. I/We request the grant of a patent on the basis of this application.

Signature Date
K R Bryer & Co 24 June 1999

12. Name and daytime telephone number of person to contact in the United Kingdom K R Bryer & Co - 01225 428877

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Notes

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1

A CLOSURE CASING

The present invention relates to improvements in the closure casing described in our GB Patent Application
5 Number 9909618.2.

In such closure casings it is desirable to limit access to the interior to authorised personnel and to prevent or deter casual opening by curious parties; it is also of
10 interest to be able to ensure that the casing is not accidentally opened, for example by impact or vibration.

According to one aspect of the present invention, therefore, there is provided a closure casing having two
15 co-operating closure members defining an enclosed space between them when in a juxtaposed closure position, having means for holding the closure members together in the closure position comprising at least one over-centre or toggle clamp mechanism one part of which passes
20 through openings in the closure members which are aligned when the closure members are in the said closure position, and engages a face of the closure member remote from the other part of the toggle clamp mechanism, in which there are provided means to resist the release of
25 the or each toggle clamp.

The means to resist the release of the or each toggle clamp may act to resist movement of the or each toggle

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clamp from its clamped to its release position.

Alternatively or additionally the means to resist the release of the or each toggle clamp may act to resist the withdrawal of a member of the or each toggle clamp through the openings in the closure members.

The means to resist release of the or each toggle clamp may comprise at least one aperture in a member of the toggle clamp mechanism engageable by cooperating removable obstruction means.

Following insertion of the toggle clamp through the openings of the closure members the apertures may receive said removable obstruction means, which may include R-clips, tie wraps, locking wire or padlocks which will provide different levels of security depending on the security requirements.

In another embodiment of the invention at least one of the closure members has a resilient element engageable by a part of the said toggle clamp mechanism and operable to apply a resilient resistance to the clamping movement thereof whereby to hold the clamp in its locking position when moved thereto against the resistance exerted by the resilient element, the said at least one resilient element being relatively displaceable with respect to the adjacent closure member so as to reduce the effective

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dimensions of the openings, through which a member of the toggle clamp passes whereby to obstruct withdrawal thereof.

5 When a toggle clamp tension member with an enlarged end is passed through the openings the resilient element can be moved so as to reduce the effective dimensions of the openings to the extent that the enlarged head cannot pass back therethrough. This is very useful in practice to
10 prevent individual toggle clamps becoming dislodged from the casing prior to final securement.

The use of narrow elongate openings with flat hooks is advantageous in securing toggle clamps in a closure
15 member flange of minimum width around the closure without the openings unacceptably weakening the flange.

The resilient element may be retained in a channel formed by at least a part of the closure member, so as to allow
20 longitudinal movement thereof.

The said channel may include at least a part which is not rectilinear so as to apply stress to the resilient element when the channel and resilient element are in a
25 juxtaposed position.

In a preferred embodiment the resilient element is associated with a lower flange and is relatively

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displaceable therefrom. The relative displacement may be achieved, for example, by the provision of a channel formed by the lower flange. Alternatively or additionally the resilient element may be held in place adjacent the lower flange by the use of fixing means, for example screws or the like and the openings used to accept the screws in the resilient element are elongate such as to allow a degree of movement of the resilient element with respect to the fixing means. Other means for allowing relative displacement of a resilient element with respect to a flange such as a magnetic interaction are also not beyond the scope of the invention.

In a further embodiment of the invention the toggle clamp mechanism may have means for engagement by a tool whereby to assist in operating the mechanism.

The said means for engagement by a tool may comprise at least one cavity in the said toggle clamp mechanism.

20

Various embodiments of the present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a toggle clamp mechanism formed as a first embodiment of the invention, shown with the parts of the mechanism separated;

Figure 2 is an enlarged perspective view of the toggle clamp shown in Figure 1 shown in use in a closure

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casing;

Figure 3 is a schematic diagram illustrating the slidable resilient element of a second embodiment of the invention in a first position;

5 Figure 4 is a schematic diagram illustrating the slidable resilient element of the second embodiment in a second position.

Referring first to Figures 1 and 2 there is shown a
10 toggle clamp generally indicated 26 comprising two main parts, namely a body part 27 and a tension link 28 interconnected by a main pivot pin 104 which passes through an opening 101 in the end of the tension link 28 and is cradled in aligned cavities 105 in two arms 109 of
15 the body part 27. The tension link 28 is a flat generally rectilinear element having a transversely projecting hook 29 at its lower end, at which there is an ear 107 with an aperture 100. At its other end the tension link 28 has a second ear 108 with an aperture
20 103.

In use of the toggle clamp the aperture 100 at the lower end of the tension link 28 is exposed, as shown in Figure 2, beyond the flange 18 and can be engaged by removable
25 obstruction means shown in the drawings as a padlock 104.

The second aperture 103 in the ear 108 at the upper end (as seen in Figure 1) of the tension link 28 is

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positioned so as to protrude from the top of the body part 27 when the toggle clamp is closed and may receive an obstructing member 102 which in the drawings is illustrated as a tie wrap.

5

The body part 27 also has a cavity 106 in its upper surface which may be used to assist in locking or unlocking of the toggle clamp 26 by inserting an elongate member (not shown) for use as a lever.

10

Referring now to Figures 3 and 4 there is shown a tension link 28 of a toggle clamp (not shown) which has been inserted through elongate slots 21, 23 and 25 of spring strips 22, 24 and flange 18.

15

In use the openings 21, 23 and 25 are normally in register allowing introduction of the tension link 28 as shown in Figure 3. Thereafter the spring strip 24 is moved in the direction shown by the arrow A in Figure 3

20 to the position shown in Figure 4; this has the effect of decreasing the effective width of the opening 25 therethrough. This prevents the hook 29 from passing back through the opening 25 and helps to retain the toggle clamp in position prior to closure of the clamp.

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of the toggle clamp mechanism engageable by cooperating removable obstruction means.

5. A closure casing according to any preceding claim,
5 in which at least one of the closure members has a resilient element engageable by a part of the said toggle clamp mechanism and operable to apply a resilient resistance to the clamping movement thereof whereby to hold the clamp in its locking position when moved thereto
10 against the resistance exerted by the resilient element, the said at least one resilient element being relatively displaceable with respect to the adjacent closure member so as to reduce the effective dimensions of the openings through which a member of the toggle clamp passes whereby
15 to obstruct withdrawal thereof.

6. A closure casing according to Claim 5, in which the said resilient element is retained in a channel which allows longitudinal movement thereof.
20

7. A closure casing according to Claim 6, in which the said channel includes at least a part which is not rectilinear so as to apply stress to the resilient element when the channel and resilient element are in a
25 juxtaposed position.

8. A closure casing according to any preceding claim, in which the over-centre or toggle clamp mechanism has

means for engagement by a tool whereby to assist in
operating the mechanism.

9. A closure casing according to Claim 8, in which the
5 said means for engagement by a tool comprise at least one
cavity in said toggle clamp mechanism.

10. A closure casing, substantially as hereinbefore
described with reference to, and as shown in, the
10 accompanying drawings.

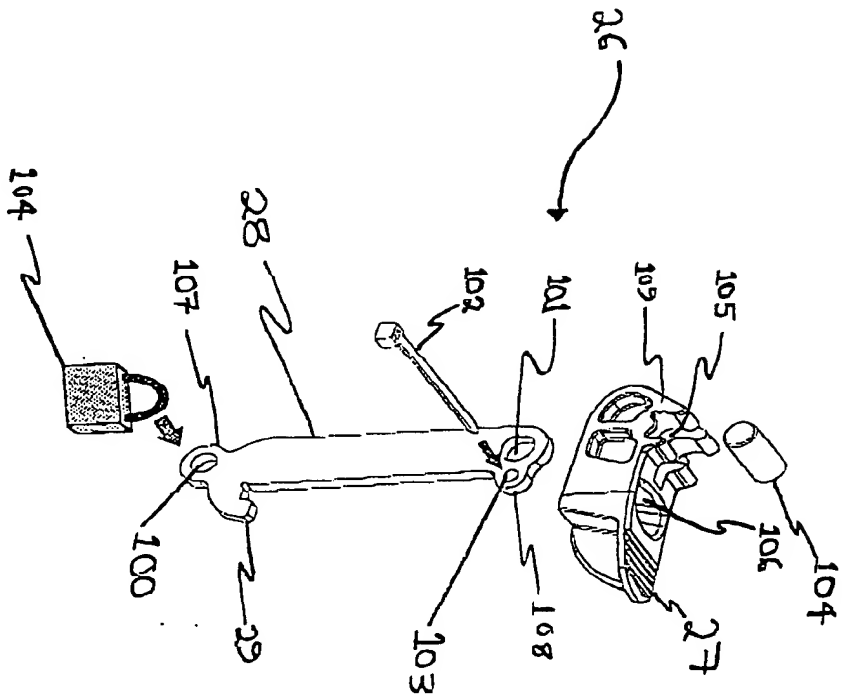


FIG 1

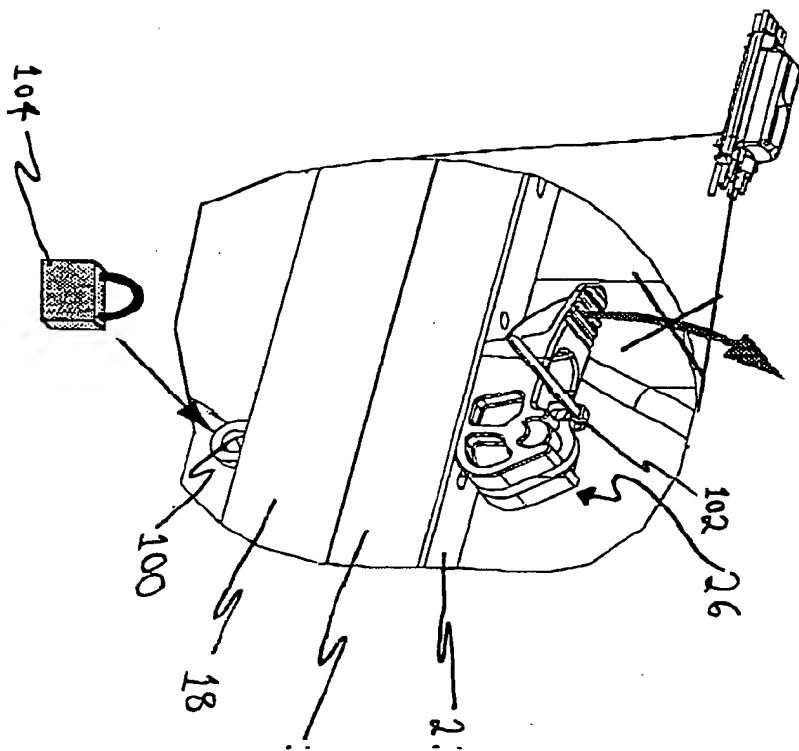


FIG 2

FIG 4

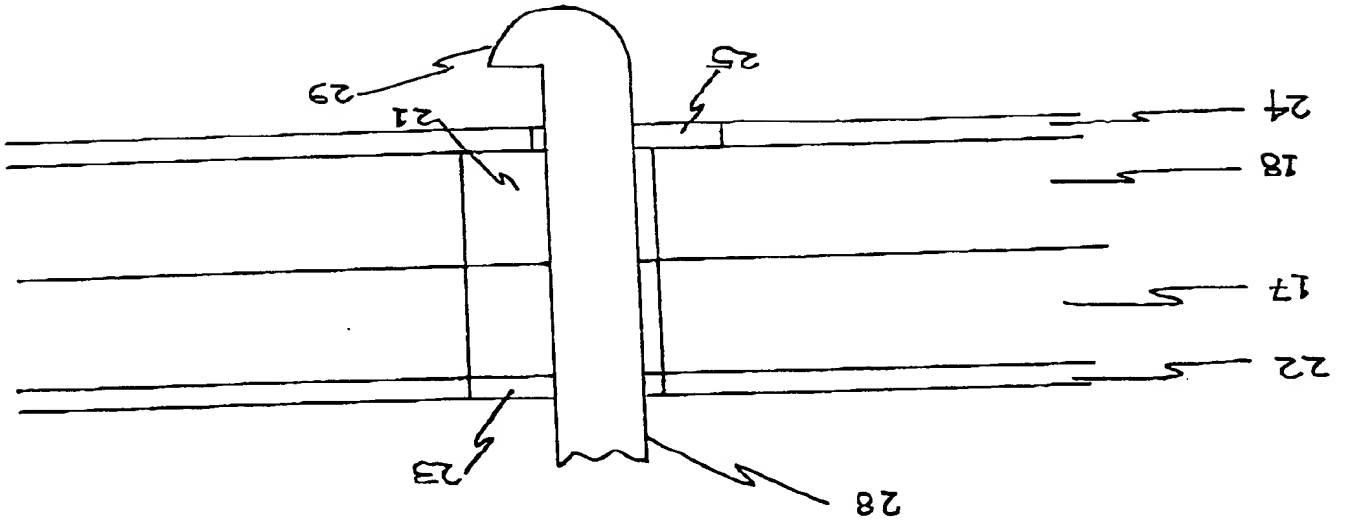
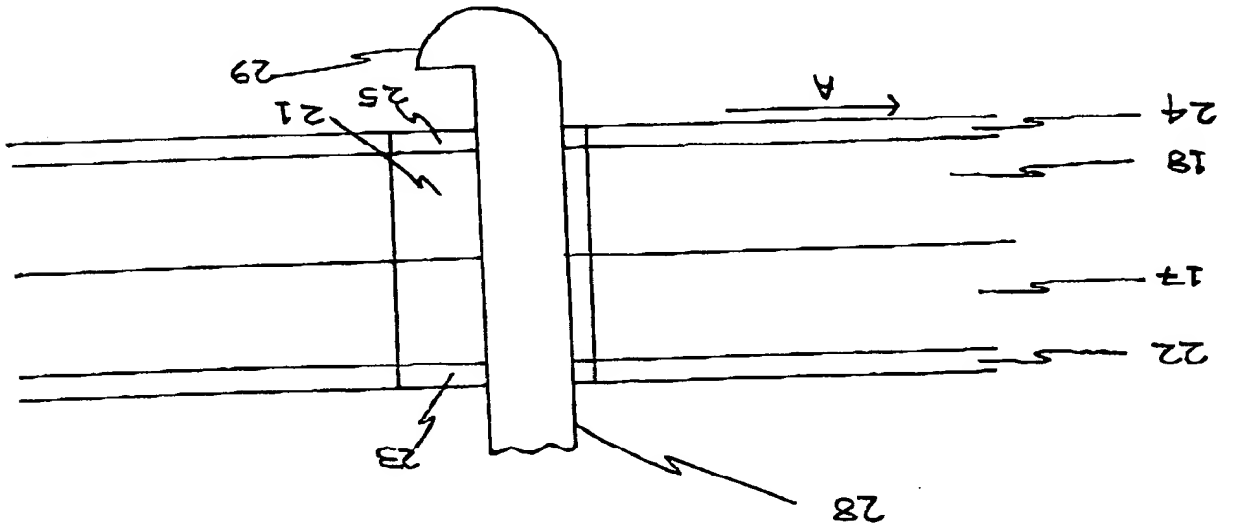


FIG 3



17, 20, 21, 22, 23, 24

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